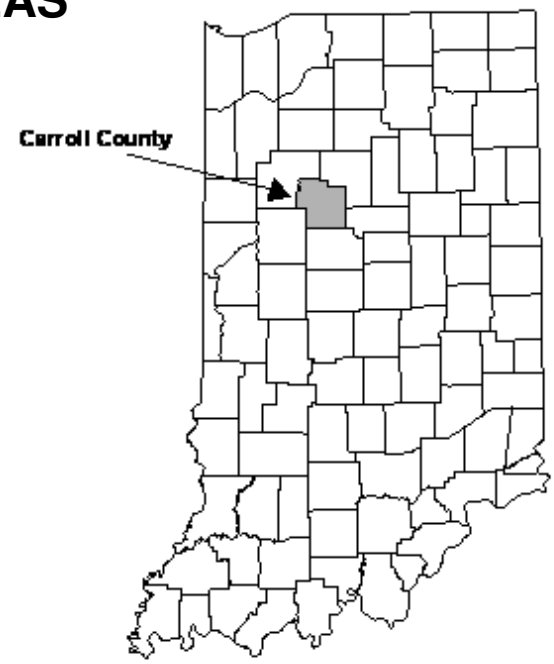
FLOOD INSURANCE STUDY

CARROLL COUNTY, INDIANA
AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
BURLINGTON, TOWN OF	180318
CAMDEN, TOWN OF	180319
CARROLL COUNTY (unincorporated areas)	180019
DELPHI, CITY OF	180020
FLORA, TOWN OF	180021
YEOMAN, TOWN OF*	180558

*No Special Flood Hazard Areas Identified



PRELIMINARY:
February 21, 2011

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
18015CV000A

NOTICE TO FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) report may not contain all data available within the Community Map Repository. Please contact the Community Map Repository for any additional data.

The Federal Emergency Management Agency (FEMA) may revise and republish part or all of this FIS report at any time. In addition, FEMA may revise part of this FIS report by the Letter of Map Revision process, which does not involve republication or redistribution of the FIS report. Therefore, users should consult with community officials and check the Community Map Repository to obtain the most current FIS report components.

Selected Flood Insurance Rate Map panels for this community contain information that was previously shown separately on the corresponding Flood Boundary and Floodway Map panels (e.g., floodways, cross sections). In addition, former flood hazard zone designations have been changed as follows:

Old Zone:	New Zone:
A1 through A30	AE
B	X
C	X

Initial Countywide FIS Effective Date:

Revised Dates: TBD

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FLOOD INSURANCE STUDY

CARROLL COUNTY, INDIANA AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study (FIS) revises and supersedes the FIS reports and Flood Insurance Rate Maps (FIRMs) in the geographic area of Carroll County, Indiana, including the City of Delphi, the Towns of Burlington, Camden, Flora, Yeoman, and the unincorporated areas of Carroll County (hereinafter referred to collectively as Carroll County), and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and to assist the community in its efforts to promote sound floodplain management. This information will also be used by Carroll County to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP), and by local and regional planners to further promote sound land use and floodplain development. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

The Digital Flood Insurance Rate Map (DFIRM) and FIS report for this countywide study have been produced in digital format. Flood hazard information was converted to meet the Federal Emergency Management Agency (FEMA) DFIRM database specifications and Geographic Information System (GIS) format requirements. The flood hazard information was created and is provided in a digital format so that it can be incorporated into local GIS and be accessed more easily by the community. No Special Flood Hazard Areas have been identified in the Town of Yeoman.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

Information of the authority and acknowledgements for each of the new studies and previously printed FIS reports and Flood Insurance Rate Maps (FIRMs) for communities within Carroll County was compiled and is shown below:

Carroll County	The hydrologic and hydraulic analyses for this study were performed by the U.S. Geological Survey (USGS) (the Study Contractor) for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-85-E-1823, Project Order No. 18. This study was completed in October 1986.
New Studies:	The hydrologic and hydraulic analyses for approximate stream reaches of Carroll County were performed by Lawson-Fisher Associates, on behalf of the Indiana Department of Natural Resources, under Indiana Public Works Project No. E060022. The Indiana Department of Natural Resources managed the production of this study as part of their Cooperating Technical Partner agreement with the Federal Emergency Management Agency dated April 29, 2004, which was defined by the Indiana DNR Mapping Activity Statement 08-01 dated July 7, 2008 and funded under agreement number EMC-2005-GR-7022. The U.S. Army Corps of Engineers (USACE) Louisville District performed a study for the Wabash River. The Flood Plain Information (Floodway Delineation) Wabash River, Delphi study was published to provide floodplain and floodway mapping, and base flood elevations.

Redelineation of the previously effective flood hazard information for this FIS report, correction to the North American Vertical Datum of 1988, and conversion of the unincorporated and incorporated areas of Carroll County into the Countywide format was performed by Lawson-Fisher Associates, on behalf of the Indiana Department of Natural Resources, under Indiana Public Works Project Number E060022. The Indiana Department of Natural Resources managed the production of this study as part of their Cooperating Technical Partner agreement with the Federal Emergency Management Agency dated April 29, 2004, which was defined by the Indiana DNR Mapping Activity Statement 08-01 dated July 7, 2008 and funded under agreement number EMC-2005-GR-7022.

1.3 Coordination

The purpose of an initial Consultation Coordinated Officer's (CCOs) meeting is to discuss the scope of the FIS. A final CCO meeting is held to review the results of the study. The dates of the initial and final CCO meetings held for the previously effective FIS reports covering the geographic area of Carroll County, Indiana are shown in Table 1 (Reference 1). The initial and final CCO meetings were attended by the study contractor, FEMA (or the Federal Insurance Administration), the Indiana Department of Natural Resources (IDNR), and the affected communities.

Table 1: CCO Meeting Dates for Pre-Countywide FIS

Community Name	Initial CCO Date	Final CCO Date
Carroll County (Unincorporated Areas)	December 1984	November 29, 1988

For this countywide FIS, an initial CCO meeting was held on November 29, 2007, and was attended by FEMA, NRCS, IDNR, the Carroll County SWCD, the Carroll County Plan Commission, the Carroll County Surveyor, the City of Delphi, and the Towns of Burlington, Camden, Flora, and Yeoman.

The results of the countywide study were reviewed at the final CCO meeting held on --, and attended by representatives of FEMA, IDNR and representatives from Carroll County. All problems raised at that meeting have been addressed.

The coordinate system used for the production of the digital FIRMs is the Transverse Mercator projection, Indiana State Plane coordinate system, East Zone, referenced to the North American Datum of 1983 and the GRS 1980 spheroid.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of Carroll County, Indiana, including the incorporated communities listed in Section 1.1

All FIRM panels for Carroll County have been revised, updated, and republished in countywide format as a part of this FIS. The FIRM panel index, provided as Exhibit 2, illustrates the revised FIRM panel layout.

Approximate methods of analysis were used to study those areas having a low development potential or minimal flood hazards as identified during the initial CCO meeting. For this study, seven new stream reaches were studied using approximate

methods. The scope and methods of new approximate studies were proposed and agreed upon by FEMA, the IDNR, and Carroll County.

Table 2: Streams Studied by Detailed Methods

Tippecanoe River	Wabash River

Table 3: Streams Studied by Approximate Methods

Bachelor Run	Rattlesnake Creek
Burnetts Creek	Rock Creek
Deer Creek	Tippecanoe River
Little Deer Creek	Wabash River
Middle Fork Wildcat Creek	Wildcat Creek
Pleasant Run	

Table 4: Scope of Study

Stream	Limits of Approximate Study
Bachelor Run	Deer Creek to Ayres Ditch
Burnetts Creek	Wabash River to County Line
Deer Creek	Mouth to Cass County Line
Little Deer Creek	Mouth to Howard County Line
Middle Fork Wildcat Creek	CR 800 S to Clinton County Line
Rock Creek	Mouth to Cass County Line
Wildcat Creek	Tippecanoe County Line to Howard County Line
Stream	**Limits of Redelineation Study**
Tippecanoe River	White-Tippecanoe County line To Oakdale Dam
Wabash River	Tippecanoe County Line to limit Of detailed study

2.2 Community Description

Carroll County is located in north-central Indiana and is bordered by Cass and White Counties to the north, Cass and Howard Counties to the east, Clinton County to the south, and Tippecanoe and White Counties to the west. Carroll County is located approximately 50 miles northwest of Indianapolis. Carroll County is served by US route 421, and State Routes 218, 75, 29, 25, and 18.

The climate in Carroll County ranges from hot and humid in the summertime to cold during the winter season. Average daytime temperatures during the summer fall around 72.8 ºF, while winter temperatures average at approximately 28.5 ºF. Precipitation for Carroll County totals an annual amount of 37.85 inches.

According to U.S. Census Data from the year 2000, the population of Carroll County was reported to be 20,165. Table 5 lists the population of the incorporated areas in Carroll County.

Table 5: Population of incorporated cities and towns in Carroll County (2000 Census)

Community	Population
Burlington, Town of	444
Camden, Town of	582
Delphi, Town Of	3,015
Flora, Town Of	2,227
Yeoman, Town Of	96

2.3 Principal Flood Problems

Major flooding in Carroll County primarily occurs along the Tippecanoe and tributaries to that river. Major floods principally occur during the winter and spring months, but can occur during any season. Generally, two types of storm events cause flooding. During the winter and spring, storms of moderate intensity and long duration, coupled with frozen ground, cause flooding to occur. During the summer, thunderstorms which have high intensities and relatively short durations can cause floods. Localized flood problems in the incorporated areas are summarized below:

Table 6: Flood Crest Elevations USGS gage for Wabash River at Delphi

Year	Discharge Cubic Feet Per Second (CFS)	Elevation (feet, gage datum)
1913	145,000	28.40
1943	85,300	25.60
1944	50,800	23.48
1950	68,600	24.95
1958	61,500	25.54
1959	71,500	27.48
1963	50,000	23.00

Table 7: Flood Crest Elevations USGS gage for Tippecanoe River near Delphi

Year	Discharge Cubic Feet Per Second (CFS)	Elevation (feet, gage datum)
1937	17,400	13.5
1950	17,200	13.43
1957	18,800	14.08
1958	21,400	14.72
1959	22,600	15.10
1968	20,600	14.36
1979	17,600	13.19
1981	19,200	13.85
1985	21,900	14.86
1991	22,100	12.87
1993	18,900	12.93
1994	20,600	13.72
2003	18,500	12.80
2005	17,400	12.33

Table 8: Flood Crest Elevations USGS gage for Deer Creek near Delphi

Year	Discharge Cubic Feet Per Second (CFS)	Elevation (feet, gage datum)
1943	18,000	19.80
1950	9,160	14.40
1958	14,400	18.26
1959	12,100	16.72
1983	8,120	12.58
1985	8,850	13.20
1989	8,480	12.89
1991	8,250	12.69
1998	10,200	14.27
2003	18,700	18.64

2.4 Flood Protection Measures

The City of Delphi has a levee system known as the Delphi Local Flood Protection Project. Please see the Flood Insurance Rate Map (FIRM) for the level of protection provided. Other structures in Carroll County include Oakdale Dam on the Tippecanoe River. However, this structure is operated for power generation.

3.0 ENGINEERING METHODS

For the flooding sources studied by detailed methods in Carroll County, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 1-percent-annual-chance flood in any 50-year period is approximately 40 percent (4 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analysis

Hydrologic analyses were carried out to establish peak discharge-frequency relationships for each flooding source studied by detailed methods affecting Carroll County. Peak discharges for Tippecanoe River were taken from previously coordinated discharges published by the IDNR (Reference 5). Peak discharges for the Wabash River are taken from the model developed by the US Army Corps of Engineers (USACE) in the Floodplain Information Report for the Wabash River in Delphi. Table 9 contains a summary of peak discharges for the 1-percent annual chance floods for each flooding source studied in detail in Carroll County.

Table 9: Summary of Discharges

Flooding Source And Location	Drainage Area (Square Miles)	Peak Discharge (cfs) 10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
TIPPECANOE RIVER					
Just downstream of Oakdale Dam	N/A	N/A	N/A	25,500	N/A
At Tippecanoe Co Boundary	N/A	N/A	N/A	27,500	N/A
WABASH RIVER					
1,800 feet upstream of confluence with Deer Creek	N/A	N/A	N/A	71,000	N/A
At Tippecanoe Co Boundary	N/A	N/A	N/A	79,000	N/A

Standard and accepted hydrologic methods were used to develop discharge data on the study streams in Carroll County. These data were coordinated with the Indiana Department of Natural Resources, the Natural Resources Conservation Service (formally the Soil Conservation Service), the U. S. Geological Survey and the Louisville District of the U. S. Army Corps of Engineers, through a Memorandum Of Understanding dated May 6, 1976. Discharge curves for the 10%, 2%, 1%, and 0.2% annual chance floods were developed for each study stream using several different procedures and compared for consistency.

3.2 Hydraulic Analysis

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Users should be aware that flood elevations shown on the Flood Insurance Rate Map (FIRM) represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the Floodway Data table in the FIS report. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to us the flood elevation data presented in this FIS report in conjunction with the data shown on the FIRM.

Cross sections for the backwater analyses were obtained from a variety of sources including: physical survey data, IDNR contour mapping, USGS topographic mapping and local contour mapping.

For the new Zone A study reaches, the USACE HEC-RAS program was used. HEC-RAS is an updated version of the HEC-2 program used to perform step-backwater analyses.

The 1% annual chance flood profile of Tippecanoe River was developed using the 1913 historical flood profiles provided by the Indiana Department of Natural Resources. The 1913 flood profile was accepted as representative of the 1% annual chance flood. This was verified at two locations. The tailwater elevation was computed using slope-conveyance to be 577.9 feet NAVD. The 1913 flood indicated 577.7 feet NAVD. This again established the validity of using the 1913 profile as the 1% annual chance flood profile. The headwater elevation was computed using WSPRO, a step-backwater computer program, and this elevation was used as the 1% annual chance flood elevation between the bridge and the dam.

The Wabash River hydraulic analysis is from the City of Delphi FPI. The analysis was done by the United States Army Corp of Engineers (USACE) using the HEC-2 modeling program to perform step-backwater analyses.

For new Zone A study areas, analyses were based on field inspection and modeling of the stream reaches using simplified HEC-RAS models. Structural measurements or

field surveying was not performed. Cross section geometry was derived from topographic mapping and from the 2005 statewide orthophotography project. Starting elevations were assumed to be normal depth.

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the Flood Profiles (Exhibit 1) are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

3.3 Vertical Datum

All FIS reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum in use for newly created or revised FIS reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the finalization of the North American Vertical Datum of 1988 (NAVD88), many FIS reports and FIRMs are being prepared using NAVD88 as the referenced vertical datum.

All flood elevations shown in this FIS report and on the FIRM are referenced to NAVD88. Structure and ground elevations in the community must, therefore, be referenced to NAVD88. It is important to note that adjacent communities may be referenced to NGVD29. This may result in differences in Base Flood Elevations (BFEs) across the corporate limits between the communities.

In this revision, a vertical datum conversion of -0.37 feet was calculated at the centroid of the county and used to convert all elevations in Carroll county from NGVD29 to NAVD88 using the National Geologic Survey's VERTCON online utility (VERTCON, 2005).

$$(\text{NGVD29} - 0.37 = \text{NAVD88})$$

For more information on NAVD88, see the FEMA publication entitled Converting the National Flood Insurance Program to the North American Vertical Datum of 1988 (FEMA, June 1992), or contact the Vertical Network Branch, National Geodetic Survey, Coast and Geodetic Survey, National Oceanic and Atmospheric Administration, Rockville, Maryland 20910 (Internet address http://www.ngs.noaa.gov).

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the Technical Support Data Notebook associated with the FIS report and FIRM for this community. Interested individuals may contact FEMA to access these data.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each FIS provides 1-percent-annual-chance flood elevations and delineations of the 1- and 0.2-percent-annual-chance floodplain boundaries and 1-percent-annual-chance floodway to assist communities in developing floodplain management measures. This information is presented on the FIRM and in many components of the FIS report, including Flood Profiles, and the Floodway Data table. Users should reference the data presented in the FIS report as well as additional information that may be available at the local map repository before making flood elevation and/or floodplain boundary determinations.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent-annual-chance flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent-annual-chance flood is employed to indicate additional areas of flood risk in the community. For each stream studied by detailed methods, the 1- and 0.2-percent-annual-chance floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic mapping and from the 2005 statewide orthophotography flight.

The 1- and 0.2-percent-annual-chance floodplain boundaries are shown on the FIRM (Exhibit 2). On this map, the 1-percent-annual-chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A, AE, and X); and the 0.2-percent-annual-chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 1- and 0.2-percent-annual-chance floodplain boundaries are close together, only the 1-percent-annual-chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 1-percent-annual chance floodplain boundary is shown on the FIRM (Exhibit 2).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 1-percent-annual-chance floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent

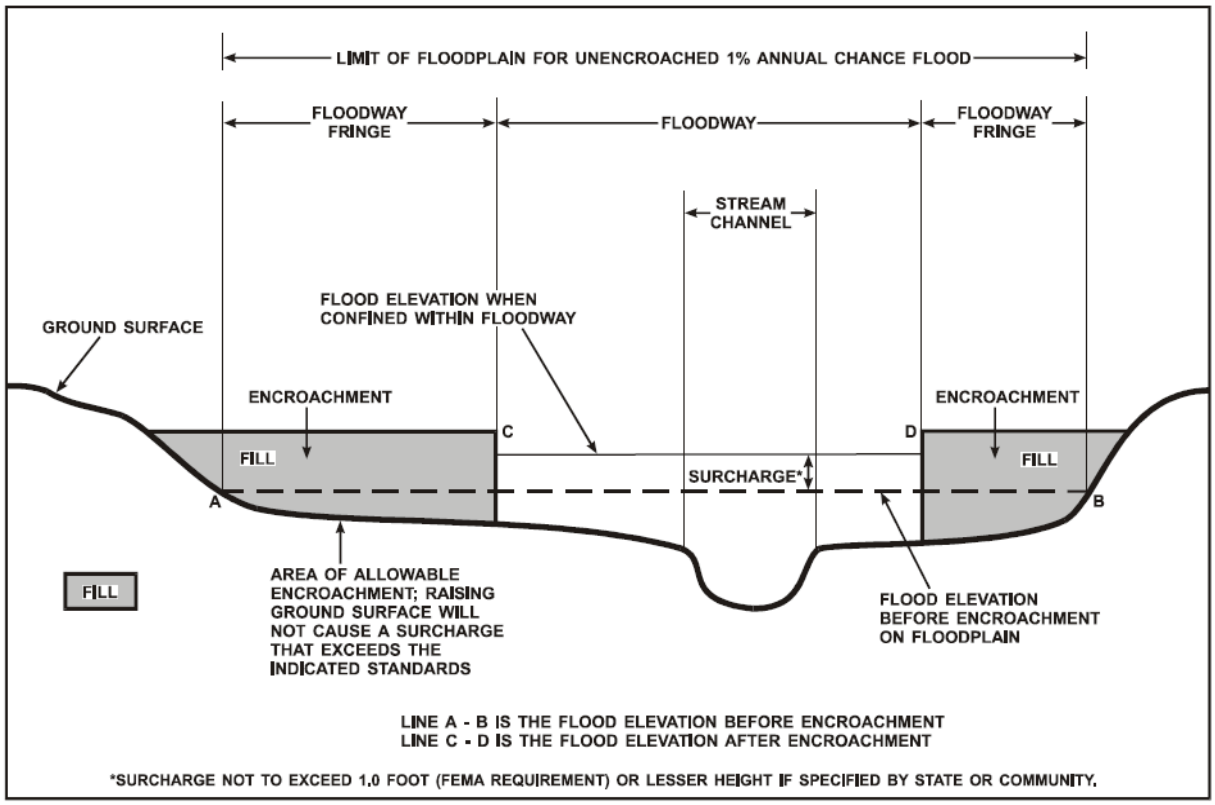
floodplain areas, that must be kept free of encroachment so that the 1-percent-annual-chance flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The State of Indiana, however, per Indiana Code IC 14-28-1 and Indiana Administrative Code 312 IAC 10, has designated that encroachment in the floodplain is limited to that which will cause no significant increase in flood height. As a result, floodways for this study are delineated based on a flood surcharge of less than 0.15 feet. The floodways in this study were approved by the IDNR, and are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodway presented in this FIS report and on the FIRM was computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computations have been tabulated for selected cross sections in Table 10. In cases where the floodway and 1-percent-annual-chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown.

The area between the floodway and 1-percent-annual-chance floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 1-percent-annual-chance flood more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 1.

Figure 1: Floodway Schematic



FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET/SECOND)	REGULATORY (FEET, NAVD)	WITHOUT FLOODWAY (FEET, NAVD)	WITH FLOODWAY (FEET, NAVD)	INCREASE (FEET)
TIPPECANOE RIVER								
A	18.57	*	*	*	578.1	*	*	*
B	18.61	*	*	*	578.8	*	*	*
WABASH RIVER								
A	328.18	2,754	27,285	2.9	541.2	541.2	541.2	0.0
B	328.85	1,648	22,398	3.5	541.9	541.9	541.9	0.0
C	329.22	756	14,934	5.3	542.3	542.3	542.3	0.0
D	329.54	1,948	24,700	2.9	543.0	543.0	543.0	0.0
E	329.9	2,681	16,826	4.2	543.3	543.3	543.3	0.0
F	330.09	1,986	22,165	3.2	543.6	543.6	543.6	0.0
G	330.63	1,259	20,066	3.5	544.0	544.0	544.0	0.0
H	330.8	792	13,406	5.3	544.1	544.1	544.1	0.0
I	331.07	872	14,466	4.9	544.8	544.8	544.8	0.0
J	331.36	585	11,089	6.4	545.2	545.2	545.2	0.0
K	331.87	645	11,417	6.2	546.3	546.3	546.3	0.0
L	332.62	1,357	18,499	3.8	547.7	547.7	547.7	0.0
M	332.88	1,551	20,210	3.5	548.0	548.0	548.0	0.0
N	333.12	2,173	22,976	3.1	548.2	548.2	548.2	0.0

[1] MILES ABOVE MOUTH

TABLE 10

FEDERAL EMERGENCY MANAGEMENT AGENCY

CARROLL COUNTY, IN
AND INCORPORATED AREAS

FLOODWAY DATA

Wabash River - Tippecanoe River

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone A

Zone A is the flood insurance risk zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no BFEs or base flood depths are shown within this zone.

Zone AE

Zone AE is the flood insurance risk zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS by detailed methods. In most instances, whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance risk zone that corresponds to areas outside the 0.2-percent-annual-chance floodplain, areas within the 0.2-percent-annual-chance floodplain, and areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent-annual-chance flood by levees. No BFEs or base flood depths are shown within this zone.

6.0 FLOOD INSURANCE RATE MAP

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance risk zones as described in Section 5.0 and, in the 1-percent-annual-chance floodplains that were studied by detailed methods, shows selected whole-foot BFEs or average depths. Insurance agents use the zones and BFEs in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 1- and 0.2-percent-annual-chance floodplains, floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

The current FIRM presents flooding information for the entire geographic area of Carroll County. Previously, separate FIRMs were prepared for each identified flood prone incorporated community and for the unincorporated areas of the county. Historical data relating to the maps prepared for each community are presented in Table 11.

7.0 OTHER STUDIES

This FIS report either supersedes or is compatible with all previous studies on streams studied in this report and should be considered authoritative for purposes of the NFIP.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Flood Insurance and Mitigation Division, Federal Emergency Management Agency, Region V, 536 S. Clark Street, 6th Floor, Chicago, IL 60605

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Burlington, Town of	TBD	None	TBD	None
Camden, Town of	TBD	None	TBD	None
Carroll County (Unincorporated Areas)	October 18, 1974	September 1, 1978	November 15, 1989	None
Delphi, City of	November 23, 1973	None	August 1, 1995	None
Flora, Town of	May 24, 1974	None	November 1, 1995	None
*Yeoman, Town of	N/A	None	N/A	None

*No Special Flood Hazard Area

TABLE 11

FEDERAL EMERGENCY MANAGEMENT AGENCY

CARROLL COUNTY, IN
(AND INCORPORATED AREAS)

COMMUNITY MAP HISTORY

9.0 BIBLIORAPHY AND REFERENCES

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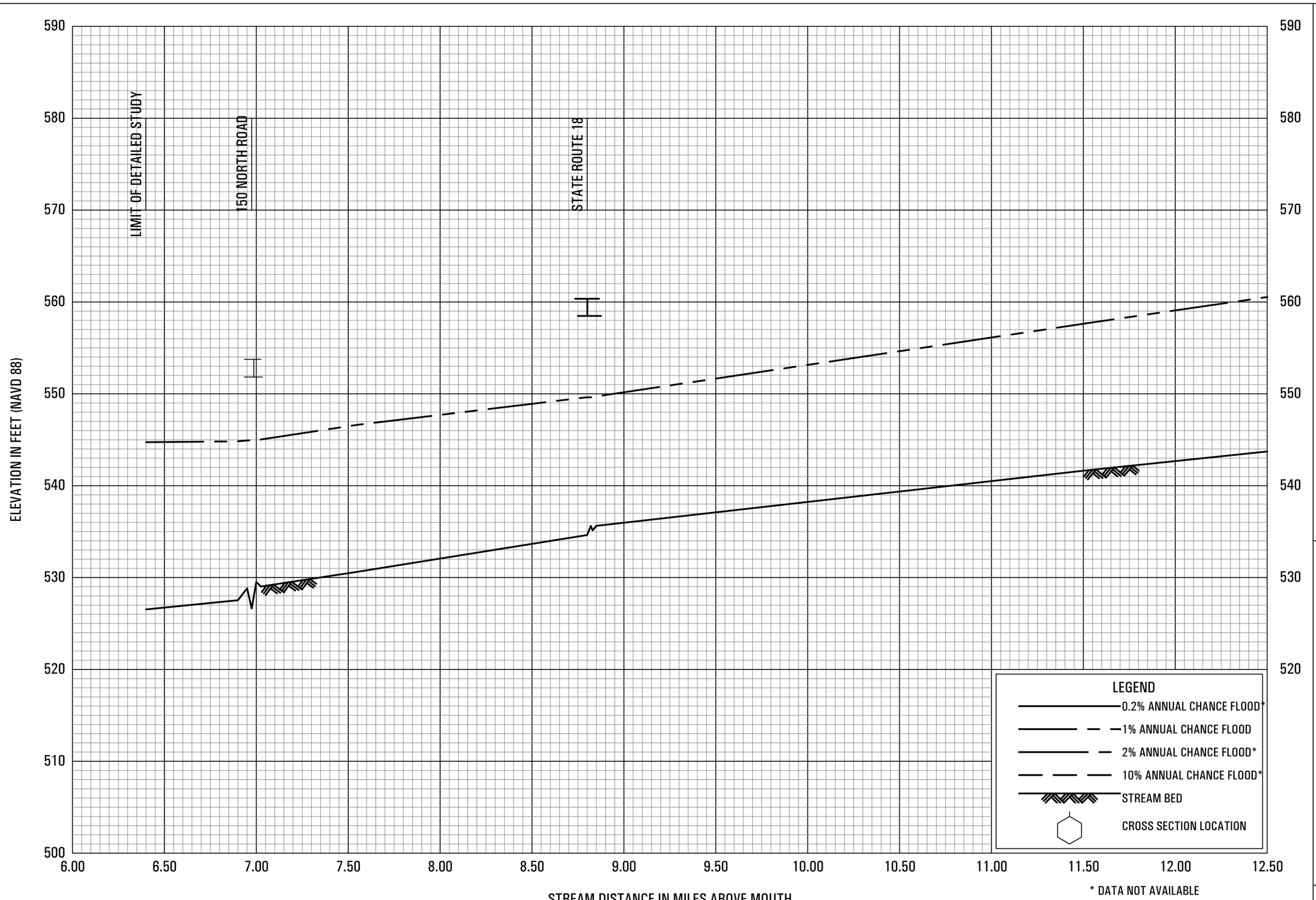


FLOOD PROFILES

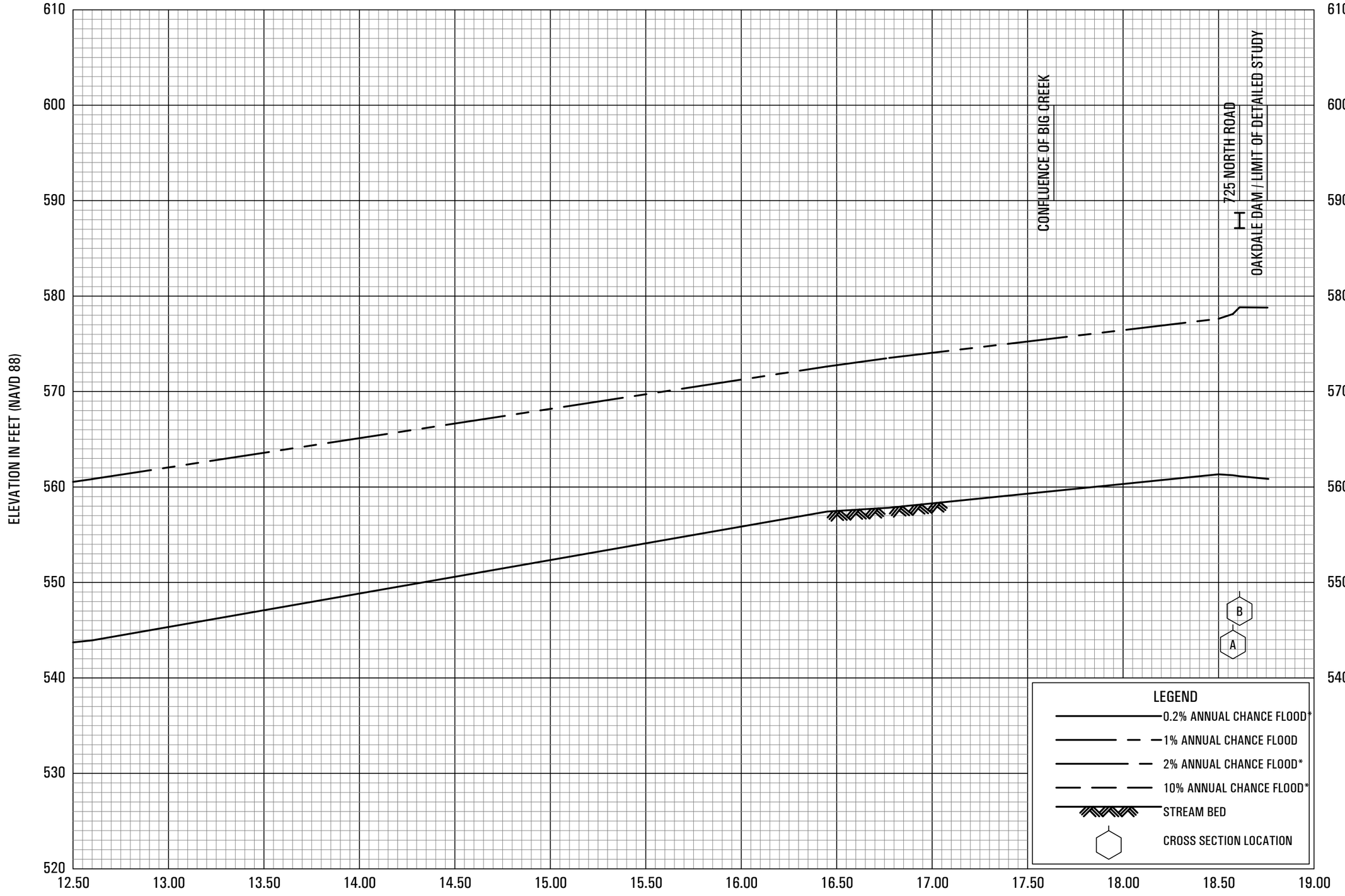
TIPPECANOE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

CARROLL COUNTY, IN

AND INCORPORATED AREAS

01P



* DATA NOT AVAILABLE

FLOOD PROFILES

TIPPECANOE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

CARROLL COUNTY, IN

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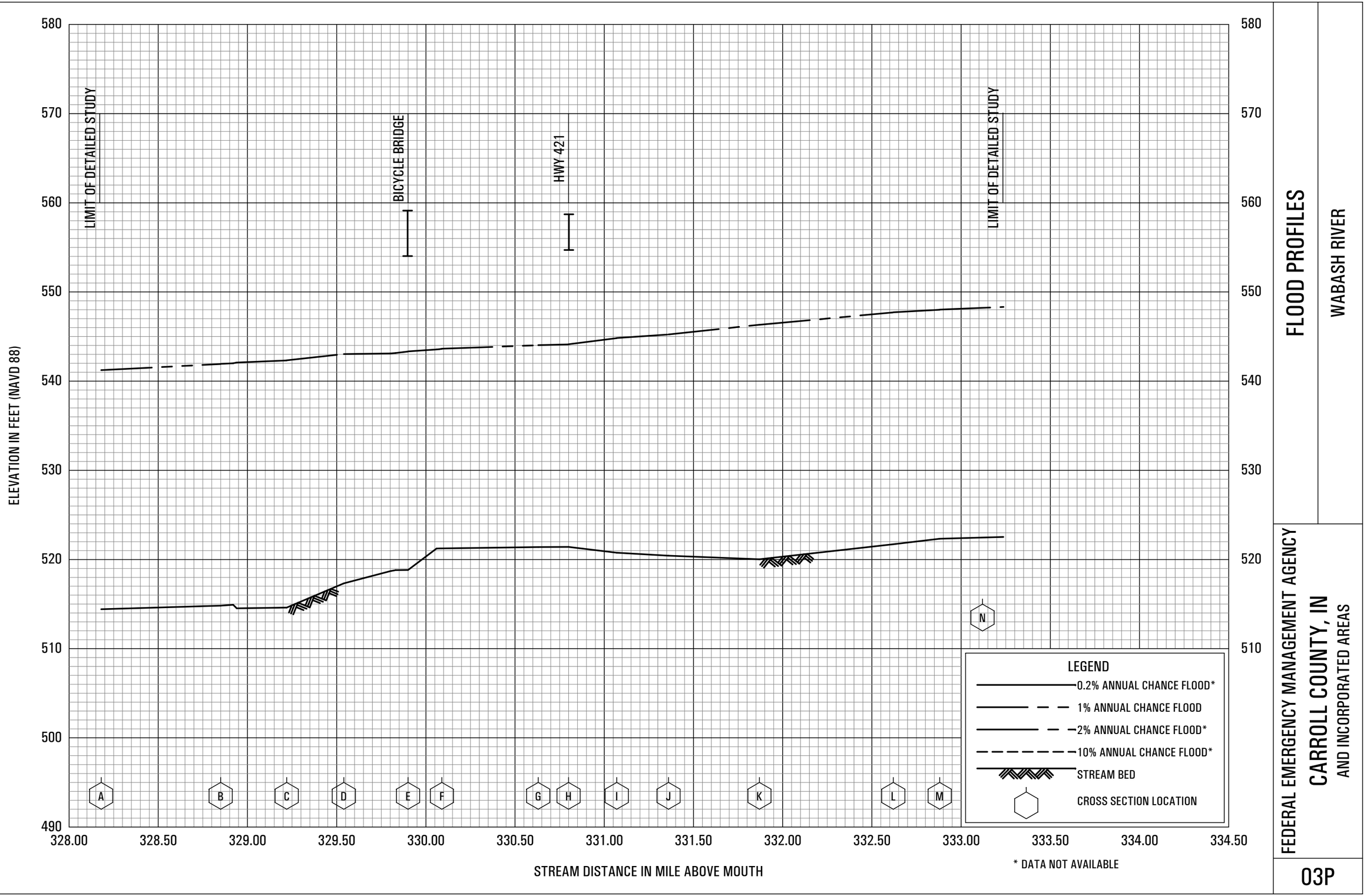
02P



FLOOD PROFILES

WABASH RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

CARROLL COUNTY, IN

AND INCORPORATED AREAS

03P